Quiz 2 (02/14)

Name: _____

Problem 1

1. Predict the output of the following code snippets.

    - Predict `C` in `C = [mod(i-j,5) for i in 1:5, j in 1:5]`

2. Draw (with some labeling) the plot created by the following snippet.

In [ ]:
```
g(x) = sin(x)
h(x) = sqrt(x)
X = range(-pi/2, stop=pi/2, length=201)
Y = [g.(X[1:100]); h.(X[101:end])]

using PyPlot
plot(X,Y)
```

Problem 2

Fill in the Julia function `same_bday` below. It should perform a Monte Carlo simulation to estimate the probability that at least two students in a class of `class_size` students have the same birthday, using `n_trials` as the number of trials. Only consider the month/day, not the year. You may write a helper function if you wish.

Assume that, because of leap years, students are equally likely to be born on any day of the year, except for February 29 which is four times less likely than the other days of the year. In other words, if the probability of being born on February 29 is p, then the probability of being born on each of the other days of the year is $4p$.

Your code does not have to be perfect, but it should be clearly readable to me (a human).

In [ ]:
```
function same_bday(class_size, n_trials)
```